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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,189	03/10/2004	Isao Hasegawa	65933-067	2729
7590 07/28/2005 McDermott, Will & Emery 600 13th Street, N.W. Washington, DC 20005-3096			EXAMINER ROY, SIKHA	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/796,189

Applicant(s)

HASEGAWA ET AL.

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-18 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/378,907.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0405.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

The Amendment, filed on May 12, 2005 has been entered and is acknowledged by the Examiner.

Claim Objections

Claim 15 is objected to because of the following informality:

In claim 15 page 33 line 1 'etchnat,' should be replaced by -- etchant,--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10170955 to Ichimura et al.

Regarding claim 15 Ichimura discloses (sections [0003] – [0005], [0021], [0031] – [0033] Figs. 2, 9a, 9b, 15) a display apparatus comprising a liquid crystal device including an optical element having an anode (pixel electrode), luminous element and a cathode (counter electrode) formed on layered structure of wires wherein the layered structure of wires is provided in a contact hole formed in an insulating film comprised of

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first insulating film 18 of SiO₂ film of thickness 30 nm and second insulating film 19 of SiN of thickness of 370 nm. Ichimura further discloses the layered structure of wires includes first metal layer made of refractory metal Ti, wiring layer made of Al and a second metal layer of Ti having thickness of 100 nm formed in this order.

Regarding claim 17 Ichimura discloses the second insulating film is formed such that the thickness (370 nm) of the second insulating film is greater than that of the first insulating layer and is less than 600nm.

Regarding claim 18 Ichimura discloses the first metal layer of Ti (thickness 50 nm) is thicker than the first insulating layer (thickness 30 nm).

Claims 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,281,552 to Kawasaki et al.

Regarding claim 15 Kawasaki discloses (Figs. 2A, 2C, column 8 lines 12-28, column 17 lines 20-30, column 18 lines 20-25, 46, 47) a self-light emitting display panel including driving circuit portion comprising layered structure of wires in the circuits formed from thin film transistors and optical element (pixel portion) formed on the layered structure of wires comprising anode (pixel electrode) 2027, luminous element (EL material) 2029 and a cathode 2030 (Fig. 15B). Kawasaki discloses circuit structure comprising a protective insulating film 150, an interlayer insulating film 151 and a contact hole wiring structure (152 – 156), the protective insulating film and the interlayer insulating film formed from different material selected from silicon nitride film, silicon oxide film, silicon nitride oxide film, the interlayer insulating film 151 being stacked on

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the protective insulating film 150 (constitute a lamination film). The contact holes reaching the source regions or the drain regions of the respective TFT's are formed to form source wirings 152 – 156. Kawasaki discloses the wiring structure (electrodes) comprising a three-layered laminated film structure consisting of first refractory metal layer of Ti, wiring layer formed on the first metal layer of Al film containing Ti and second refractory metal layer of Ti film having thickness of 150 nm.

Regarding claim 17 Kawasaki discloses (column 7 lines 40-44, column 8 lines 12-14) the second insulating layer 151 is formed with thickness of 500-1500 nm, greater than the thickness of first protective insulating layer 150 having thickness in the range from 100-400nm.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10170955 to Ichimura et al. as applied to claim 15 above, and further in view of JP 11-111990 to Nakanishi.

Claim 16 differs from Ichimura et al. in that Ichimura et al. do not exemplify the second insulating layer having a taper slower than that of the first insulating layer.

Nakanishi in analogous art of manufacturing thin film transistors discloses (sections [0018],[0019]) the second (upper) insulating layer formed with a taper slower than that of the first (lower) insulating layer to prevent the defective contact between a source electrode and a drain electrode of the thin film transistor.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to form the contact hole such that the second insulating layer has taper slower than that of the first insulating layer of Ichimura et al. as taught by Nakanishi for preventing defective contact between a source electrode and a drain electrode of the thin film transistor.

Response to Arguments

Applicant's arguments filed May 12, 2005 regarding claim 15 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., step difference in the contact hole) are not recited in the rejected claim(s). The applicant alleges that neither Ichimura nor Kawasaki discloses step difference in the contact hole provided in first insulating film of SiO₂ and second insulating film of SiN. The Examiner respectfully submits that such limitation of step difference formed in the contact hole is not cited in claim 15. Although the claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding the recitation of the second metal layer formed to have a thickness such that any severance does not occur due to level difference caused by etching rates of the first and second insulating layers the Examiner notes that the prior art of Ichimura discloses the second metal layer formed on the Al wiring layer having thickness of 100nm , same as that disclosed by the applicant and hence the function of reducing any severance due to different etching rates of first and second insulating films is inherent to the prior art structure as evidenced by the prior art structure's disclosure of all the claimed structural limitations.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879

Karabi Guharay
Karabi Guharay
Primary Examiner